

**IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF GEORGIA
ATLANTA DIVISION**

RICHARD ROSE, et al.,

Plaintiffs,

v.

BRAD RAFFENSPERGER, in his
official capacity as Secretary of State
of the State of Georgia,

Defendant.

Civil Action No. 1:20-cv-02921-SDG

EXPERT REPORT OF STEPHEN J. POPICK, PH.D.
APRIL 21, 2021

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I. INTRODUCTION

A. Scope of Project

I was retained by the plaintiffs' attorneys to determine whether voting in elections for Georgia Public Service Commissioners is racially polarized and to ascertain whether Black voters could elect candidates of their choice in one or more illustrative single-member districts.

B. Summary of Conclusions

My analysis of voting patterns in recent elections for Georgia Public Service Commissioners has led me to conclude that voting is racially polarized: Black voters and white voters prefer different candidates. In fact, voting patterns are highly polarized, with high levels of cohesion within racial groups and low levels of crossover voting between racial groups. Furthermore, the candidates preferred by Black voters always lose in the contests. They lost all of the most recent Commissioner elections despite being the candidates of choice of an overwhelming majority—more than 94 percent in each of the last six elections—of Black voters.

In addition, I have determined that the candidates preferred by Black voters in these elections would have won if the election had been held only among the voters in current Commission residency District 3, rather than statewide. The same

would have been true if the election had been held only among voters in District 1 in the illustrative plan attached to the plaintiffs' complaint in this case.

II. PROFESSIONAL BACKGROUND AND EXPERIENCE

I have extensive experience in the statistical analysis of voting behavior. From 2006 to 2012, I served as the in-house statistician in the Voting Section of the Civil Rights Division of the United States Department of Justice. During that time, I analyzed thousands of elections in a wide variety of voting cases. My work was instrumental in successful cases brought under Section 2 of the Voting Rights Act, such as *United States v. Osceola County*,¹ *United States v. Village of Port Chester*,² and *United States v. Town of Lake Park*,³ among others. I received multiple awards for my work at the Department of Justice, including a special commendation award for my work on incorporating newer methods of statistical analysis into the Department's regular analytics.

I have presented and authored several published research papers, some of which are currently under peer review. Most germane to the analysis of voting behavior is a 2010 article entitled "A Comparative Analysis of Small Area Population Estimation Methods" in the *Journal of Cartography and Geographic*

¹ *United States v. Osceola County*, 475 F. Supp. 2d 1220 (M.D. Fla. 2006).

² *United States v. Village of Port Chester*, 704 F. Supp. 2d 411 (S.D.N.Y. 2010).

³ *United States v. Town of Lake Park*, No. 09-cv-80507-MARRA, 2009 WL 10727593 (S.D. Fla. Oct. 26, 2009).

Information Science. The research for this paper was conducted during my tenure at the Department of Justice to help inform the Department's methods of handling split precincts in voting-rights analyses.

I received a B.A. in Economics from the Georgia Institute of Technology, an M.A. in Economics from George Mason University, and a Ph.D. in Economics with concentrations in econometrics and urban economics from George Washington University. A copy of my *curriculum vitae* is attached as Appendix B.

I currently work as a Senior Financial Economist for the Federal Deposit Insurance Corporation.

I am being compensated at a rate of \$150 per hour for my work in this case. My compensation is not contingent on the content of any of my opinions in this case or its outcome.

I reserve the right to add to or change my opinions based on any new information, evidence, reports prepared by other experts, or testimony that becomes available during discovery, depositions, at trial, or otherwise.

III. RACIAL BLOC VOTING ANALYSIS

I understand that *Thornburg v. Gingles* is the leading case interpreting the 1982 Amendments to the Voting Rights Act. In that case, the Supreme Court stated that the existence of racially polarized voting is essential to a vote-dilution claim

under Section 2.⁴ “The purpose of inquiring into the existence of racially polarized voting is twofold: to ascertain whether minority group members constitute a politically cohesive unit and to determine whether whites vote sufficiently as a bloc usually to defeat the minority’s preferred candidates.”⁵ Racially polarized voting thus forms the basis of two of the three preconditions for a vote-dilution claim under the “results test” set forth in *Gingles*.⁶

Racially polarized voting, which is also known as “racial bloc voting,”⁷ exists “where there is a consistent relationship between the race of the voter and the way in which the voter votes, ... or to put it differently, where black voters and white voters vote differently.”⁸ The test for determining whether Black and white voters “vote differently” is known as the “separate electorates test” and is satisfied when the results of an election “would have been different depending on whether it had been held among only the white voters or only the black voters.”⁹ Thus, if the

⁴ *Thornburg v. Gingles*, 478 U.S. 30, 46-51 (1986) (“*Gingles*”).

⁵ *Id.* at 56.

⁶ The “results test,” the Supreme Court in *Gingles* explained, requires a plaintiff to demonstrate three threshold factors to establish a violation of Section 2:

- “First, the minority group must be able to demonstrate that it is sufficiently large and geographically compact to constitute a majority in a single-member district.” *Id.* at 50.
- “Second, the minority group must be able to show that it is politically cohesive.” *Id.* at 51.
- “Third, the minority [group] must be able to demonstrate that the white majority votes sufficiently as a bloc to enable it—in the absence of special circumstances, such as the minority candidate running unopposed ... —usually to defeat the minority’s preferred candidate.” *Id.*

⁷ The Supreme Court used the terms “racially polarized voting” and “racial bloc voting” interchangeably. *Id.* at 52 n.18.

⁸ *Id.* at 53 n.21 (internal quotation marks and brackets omitted).

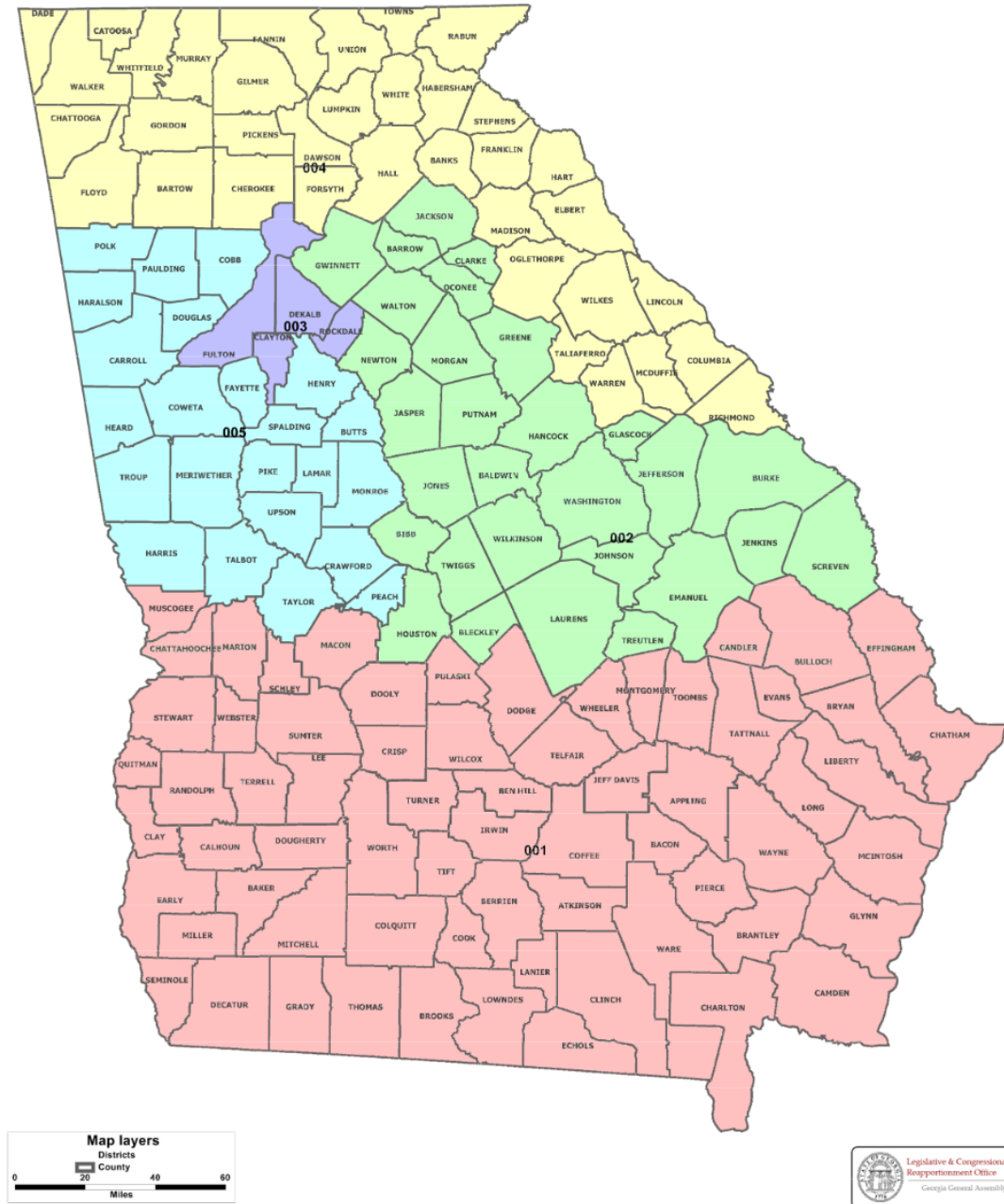
⁹ *Id.* at 58 (internal quotation marks omitted).

statistical analysis undertaken here finds that Black voters and white voters, considered separately, would have elected different candidates, then I will conclude that voting is racially polarized.

To determine whether voting is racially polarized in this case, I analyzed all general and general runoff elections for the Public Service Commission conducted over the last ten years. There were 11 such elections, including three runoffs and four contests that included at least one Black candidate.

The Georgia Public Service Commission (“Public Service Commission” or “Commission”) is a five-member body with staggered elections for seats taking place every two years in the even-numbered years. Although elections for the Commission are held statewide, members of the Commission are required to reside in one of five districts prescribed by Georgia statute. There is also a majority-vote requirement, with a runoff held if no candidate wins more than 50 percent of the statewide vote in the general election.

Map 1: Current Public Service Commission Residency Districts¹⁰



¹⁰ <http://www.psc.state.ga.us/pscinfo/districts/pscdistricts2012.pdf>.

A. Methodology

The voting patterns of white and Black voters must be estimated using statistical techniques because direct information about how individuals have voted is not available – the race of the voter is not, of course, obtainable from a secret ballot.

1. Statistical Techniques

I rely on three widely accepted and complementary statistical approaches to analyze whether racially polarized voting exists in Georgia Public Service Commission elections. Two of these approaches (homogeneous precinct analysis and bivariate ecological regression) were relied upon by the Supreme Court in *Gingles*, while the third approach was developed after *Gingles*. I rely on all three approaches, instead of just one, to bolster the strength of my conclusions.

- Homogeneous Precinct Analysis (HPA) – Homogeneous precinct analysis involves comparing the voting behavior of precincts that are racially homogeneous. As is a general practice, I define a racially homogeneous precinct as one in which 90 percent or more of voter turnout is of one racial group—in this case, either Black or non-Hispanic white.¹¹
- Ecological Regression (ER) – Developed by Leo Goodman in the 1950s, ecological regression applies a standard statistical estimation technique of linear regression that takes precinct-level data on the racial composition of voter turnout and votes cast for candidates to

¹¹ See, e.g., Sheila Ards & Marjorie Lewis, “Vote Dilution Research: Methods of Analysis,” 6(2) Trotter Rev. 29, 30 (1992), available at https://scholarworks.umb.edu/cgi/viewcontent.cgi?article=1244&context=trotter_review.

determine whether voting is racially polarized. For my analysis here, I use Bayesian linear regression, a standard linear regression technique.

- Ecological Inference (EI) – The third technique, ecological inference, was developed by Harvard Professor Gary King in the mid-1990s.¹² Ecological inference incorporates both Duncan’s method of bounds and maximum likelihood statistics, both standard measures, to produce estimates of voting behavior by race. I relied on two different implementations of ecological inference available through Professor King’s ZELIG software package’s Multinomial Dirichlet (RxC EI) model and EI maximum likelihood (iterative EI).¹³

In conducting my analysis for this case, I also relied on Plescia’s and De Sio’s 2018 article in the Journal of Quality and Quantity,¹⁴ which found that the reliability of EI methods can be improved by rolling up votes for candidates (or rolloff) where this is less than 5 percent of total turnout.¹⁵ Therefore, for my analyses, I combine candidates (or rolloff) if their vote percentage is below 5

¹² Gary King (<https://gking.harvard.edu/biocv>) is a preeminent expert in analysis of voting behavior. He and I collaborated during my time at the Department of Justice.

¹³ I used iterative EI as a robustness check for the racial bloc voting estimates using RxC EI because iterative EI estimates the vote share for each candidate and rolloff separately. This application draws on Baretto’s 2019 paper which reported: “Across all of our analyses, we find that both methods [Iterative EI and RxC EI] produce substantively similar results. This suggests that iterative EI and RxC [EI] can be used interchangeably when assessing precinct-level voting patterns in Voting Rights Act cases and that neither method produces bias in favor or against finding racially polarized voting patterns.” Matt Barreto et al., “Estimating Candidate Support in Voting Rights Act Cases: Comparing Iterative EI and EI-RxC Methods,” Soc. Methods & Res. at 2 (2019). Thus, I should not expect to see dramatic differences in racial bloc voting estimates regardless of the EI methodology used.

¹⁴ Carolina Plescia & Lorenzo De Sio, “An evaluation of the performance and suitability of $R \times C$ methods for ecological inference with known true values,” 52 Quality & Quantity 669, 669-83 (2018) (“Plescia & De Sio”), available at <https://link.springer.com/content/pdf/10.1007/s11135-017-0481-z.pdf>.

¹⁵ Plescio & De Sio at 673. In addition, I confirmed this practice as consistent with current approaches used by political scientists to estimate voter behavior through conversations with Loren Collingwood, a political science professor at University of New Mexico and author of several statistical software packages that implement ecological inference and ecological regression methods.

percent of total turnout, until columns for voter behavior (rollups) are each over 5 percent of total turnout.¹⁶

2. Data

In order to carry out my racial bloc voting analysis, I relied on data from the Georgia Secretary of State. Specifically, I relied on reapportionment files, which combine precinct-level election results and precinct-level turnout data by race, that were produced by the Secretary of State in response to discovery requests in this case. I used these reapportionment files for my analysis of the 2012, 2014, 2016, 2018, and 2020 general elections. For the 2018 and 2021 runoff elections, I used precinct-level election results that were produced by the Secretary of State in this case along with precinct-level turnout data that is publicly available on the Secretary of State's website. I created aggregated racial group turnout totals by summing each racial group's respective categories of female, male, and unknown gender.

In examining the Secretary of State's data, I identified a small number of precincts where there were more votes reported than turnout. In my experience,

¹⁶ For example, in the 2018 District 5 election, I combined votes for the third-party candidate and voter rolloff (turnout less total votes cast). The combined percentage falls under 5 percent, so these are further combined with votes for Pridemore because HPA indicates that Pridemore is not the Black-preferred candidate. Leaving the HPA identified Black-preferred candidate separate and exclusive allows for me to clearly identify whether the *Gingles* preconditions are met: Are Black voters cohesive around a candidate, and is non-Hispanic white voting cohesive enough to prevent the Black-preferred candidate from winning?

this sort of issue is not uncommon and not indicative of poor data quality. Rather, it is typically associated with outcomes such as a poll worker not checking the appropriate box or line on the poll book. I used two standard methods to account for these discrepancies. In the first method, I excluded these precincts from my main analysis as the EI methods I employ require that votes cast in a precinct plus voter rolloff (if any) must sum to 100 percent of total turnout. My second method retained the racial proportions of precinct turnout available in the Secretary of State's data files, and adjusted turnout in precincts where total votes were greater than turnout to equal the number of votes cast. The results of this second set of analyses showed no meaningful differences with the results of the analyses that excluded those precincts.

B. Findings

In the last ten years, there have been 11 general or general runoff elections for seats on the Georgia Public Service Commission—eight general elections and three runoffs. Four of those general elections and one runoff featured a Black candidate. I analyzed all of these contests to determine the voting patterns of Black and white voters, and the full results of my analyses are set forth in Appendix A.

Table 1: Summary of Election Analyses (Black-Preferred Candidate)

Election	Black-Preferred Candidate	Race of Candidate	Outcome	Black Support	White Support
2021 - District 4 Runoff	Blackman	Black	LOST	96.08%	17.62%
2020 - District 4	Blackman	Black	RUNOFF	94.33%	14.83%
2020 - District 1	Bryant	Black	LOST	94.46%	14.47%
2018 - District 5	Randolph	White	LOST	96.03%	14.40%
2018 - District 3 Runoff	Miller	White	LOST	97.84%	20.13%
2018 - District 3	Miller	White	RUNOFF	96.55%	14.83%
2016 - District 2	Hoskins	White	LOST	79.18%	14.64%
2014 - District 4	Blackman	Black	LOST	81.29%	24.28%
2014 - District 1	Monds	Black	LOST	82.44%	12.49%
2012 - District 5	Staples	White	LOST	80.57%	15.36%
2012 - District 3	Oppenheimer	White	LOST	89.43%	21.47%

Table 1 summarizes my analyses of these elections for the Black-preferred candidates. For the sake of clarity, and because all of the statistical methods and robustness checks produced substantively identical results, I present only the results of my EI RxC analyses in this table. I chose to present this methodology because it is the most recent EI methodology in use by political scientists. “Black Support” and “White Support” is calculated as a percentage of the two major rollups of voter behavior. As can be clearly seen in Table 1, Black voters are cohesive around a single candidate of choice, and white voter support for the Black-preferred candidate is insufficient to elect the Black-preferred candidate in *ALL* elections.¹⁷

¹⁷ In addition, I also analyzed voter behavior for voters not categorized as Black or white in an aggregated “Other” group, though for parsimony I do not include results for “Other Support” as a separate column. Estimation results across all methods employed find that voters in the “Other” category, as a group, supported the Black-preferred candidate.

Table 2 summarizes the results from my EI RxC analyses of the same elections but this time presenting the results and outcomes for the white-preferred candidates.¹⁸ As can be clearly seen in Table 1, white voters are cohesive around a single candidate of choice, and white voter crossover support for the Black-preferred candidate is insufficient to elect the Black-preferred candidate in *ALL* elections. Put differently, white voter cohesion for the white-preferred candidate is sufficient to elect their candidate of choice.

Table 2: Summary of Election Analyses (White-Preferred Candidate)

Election	White-Preferred Candidate	Race of Candidate	Outcome	Black Support	White Support
2021 - District 4 Runoff	McDonald	White	WON	3.25%	80.64%
2020 - District 4	McDonald	White	RUNOFF	3.57%	77.47%
2020 - District 1	Shaw	White	WON	5.19%	78.19%
2018 - District 5	Pridemore	White	WON	2.82%	79.69%
2018 - District 3 Runoff	Eaton	White	WON	1.87%	78.97%
2018 - District 3	Eaton	White	RUNOFF	3.67%	78.01%
2016 - District 2	Echols	White	WON	20.82%	85.36%
2014 - District 4	McDonald	White	WON	18.71%	75.72%
2014 - District 1	Everett	White	WON	17.56%	87.51%
2012 - District 5	Wise	White	WON	19.43%	84.64%
2012 - District 3	Eaton	White	WON	10.57%	78.53%

In 2020, there were two contests for Public Service Commissioner on the general-election ballot: District 1 and District 4. Two candidates were Black: Robert Bryant ran for District 1 and Daniel Blackman ran for District 4. Both

¹⁸ Table 1 reports results of estimations where the rollup is applied to the white-preferred candidate as described previously in this report. Table 2 reports estimation results where the rollup is applied to the Black-preferred candidate. These are separate estimations, and therefore one cannot sum up results across Tables 1 and 2 and expect that in all cases the vote percentage will sum to 100 percent. EI RxC constrains support estimates to sum to 100 percent within an estimation, but not across separate estimations.

contests were racially polarized. The overwhelming majority of Black voters—more than 94 percent—cast their votes for Bryant and Blackman. Bryant was defeated by James “Jason” Shaw, who was the candidate preferred by the overwhelming majority of white voters. Blackman came in second to Lauren “Bubba” McDonald, Jr., who was the candidate preferred by the overwhelming majority of white voters. But no candidate won 50 percent of the votes in this three-person race. In the runoff election, Blackman was again supported by the overwhelming majority of Black voters—more than 96 percent—but lost to McDonald, who was supported by the overwhelming majority of white voters.

In 2018, there were two contests for Public Service Commissioner on the general-election ballot: District 3 and District 5. No candidates were Black. Both contests were racially polarized. In District 3, Lindy Miller was the choice of more than 90 percent of Black voters, but she came in second to Chuck Eaton, who was preferred by the overwhelming majority of white voters. There was a runoff, however, because no candidate in that three-person race won more than 50 percent of the vote. In that contest, Miller was again the choice of more than 90 percent of Black voters but was defeated by Eaton, who was the choice of the overwhelming majority of white voters. In District 5, Dawn Randolph also received the support of

more than 90 percent of Black voters but was defeated by Tricia Pridemore, who was the overwhelming favorite of white voters.

Only District 2 was on the general-election ballot in 2016, and none of the candidates were Black. The election was racially polarized. Eric Hoskins was the choice of the vast majority of Black voters but was defeated by Tim Echols, who was the choice of the vast majority of white voters.

In 2014, Districts 1 and 4 were on the general-election ballot, and two candidates were Black: John Monds in District 1 and Daniel Blackman in District 4. These candidates were preferred by the overwhelming majority of Black voters but were defeated by Doug Everett and Bubba McDonald, respectively, who were supported by the overwhelming majority of white voters. Both contests were racially polarized.

Finally, in 2012, Districts 3 and 5 were on the ballot, and none of the candidates were Black. Both contests were racially polarized. Stephen Oppenheimer and David Staples were preferred by the vast majority of Black voters but were defeated by Chuck Eaton and Stan Wise, respectively, who were preferred by the overwhelming majority of white voters.

In sum, I find the following:

- There have been 11 general or general runoff elections for Public Service Commissioner in the last ten years.
- Voting was racially polarized in all 11 of these contests, with Black voters and white voters supporting different candidates.
- Black voters were highly cohesive in all 11 elections, supporting their candidates of choice with overwhelming majorities. In the last six elections, Black voters supported their candidates of choice with greater than 94 percent of their votes.
- White voters also voted strongly as a bloc in all 11 elections, supporting their candidates of choice with overwhelming majorities.
- White voters voted sufficiently as a bloc statewide to defeat the Black-preferred candidates in each election cycle.

IV. ILLUSTRATIVE PLANS

The first *Gingles* precondition for a vote-dilution claim under Section 2 requires a plaintiff to show that the minority group is sufficiently large and geographically compact such that it could form a majority in at least one single-member district. For this part of my analysis, I reviewed two illustrative plans: the current residency districts for Public Service Commissioners and the Illustrative Plan 1 that is attached to the plaintiffs' complaint as Exhibit 3.

A. Current Residency Districts

The racial composition of the current residency districts is listed in Table 3. According to the 2010 Census, which is the most recent decennial census

available, the current residency districts include one majority-Black district.

District 3 has a total population that is 50.02 percent Black and a voting-age population that is 49.86 percent Black. According to the 2019 American

Community Survey (“ACS”), which is the most recent census data available,

District 3 has a citizen voting-age population that is 53.40 percent Black.

Table 3: Summary of Residency District Population

	2010 Census						2015-2019 ACS		
	Population			Voting Age Population			Citizen Voting Age Population		
District	Black	Total	Ratio	Black	Total	Ratio	Black	Total	Ratio
1	690,209	1,904,574	36.24%	486,635	1,456,328	33.42%	507,660	1,466,040	34.63%
2	566,313	1,923,660	29.44%	383,993	1,408,371	27.27%	437,980	1,415,660	30.94%
3	1,018,158	1,957,113	52.02%	735,177	1,474,398	49.86%	800,610	1,499,230	53.40%
4	253,229	1,918,432	13.20%	174,886	1,424,356	12.28%	192,055	1,483,640	12.94%
5	174,886	1,947,874	8.98%	360,098	1,432,648	25.14%	422,740	1,491,950	28.33%

Next, I analyzed voting behavior in each of the five residency districts for all 11 Georgia Public Service Commission elections between 2012 and 2020. To do so, I totaled the votes in each of the whole counties comprising those districts to determine whether Black voters would have had the ability to elect candidates of their choice if the winner of the election were determined solely by the votes cast within that district, rather than statewide. The results of this analysis are shown in Table 4, which shows the number of votes cast for each candidate within the residency district and the percentage of the vote won by the Black-preferred candidate (identified in Section III) in that district.

Across all elections, the Black-preferred candidate won the majority of votes cast in residency District 3, which encompasses Fulton, Clayton, Dekalb and Rockdale counties. In addition, the Black-preferred candidate would have lost consistently if the election had been held only in Districts 1, 2, 4, or 5. Based on these reconstituted election results, which involve no more complex statistics than simply summing up votes in whole counties, I conclude that current District 3 would provide Black voters with the ability to elect candidates of their choice if elections were held just within that district.

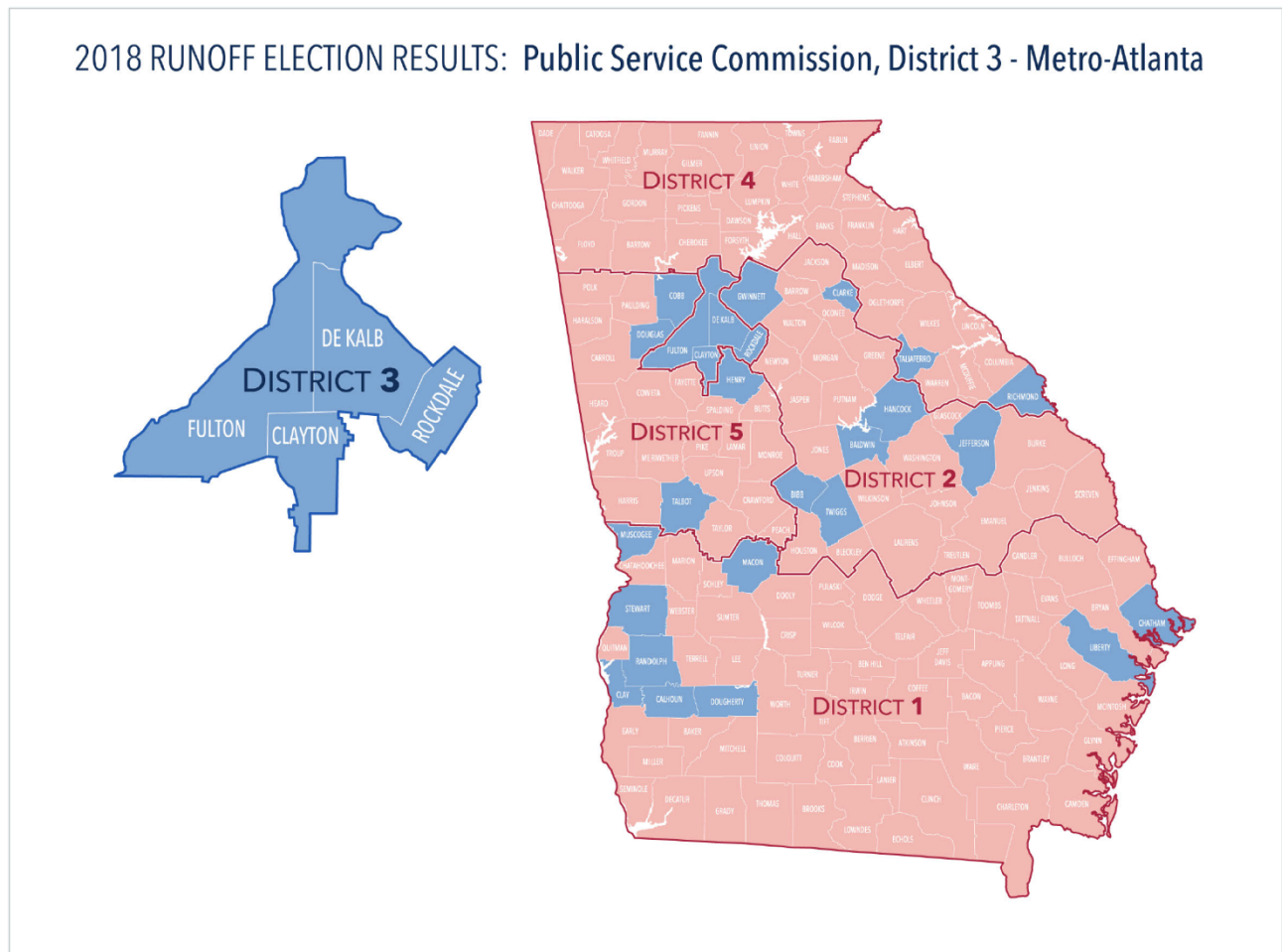
Table 4: Summary of Election Results in Residency District 3 (Black-Preferred Candidate)

Election	Black-Preferred Candidate	Share of Votes Cast
2021 - District 4 Runoff	Blackman	76.77%
2020 - District 4	Blackman	73.52%
2020 - District 1	Bryant	73.11%
2018 - District 5	Randolph	74.87%
2018 - District 3 Runoff	Miller	73.52%
2018 - District 3	Miller	75.35%
2016 - District 2	Hoskins	54.94%
2014 - District 4	Blackman	67.39%
2014 - District 1	Monds	53.61%
2012 - District 5	Staples	54.69%
2012 - District 3	Oppenheimer	67.05%

Map 2 superimposes the current residency districts over the official election results for the 2018 runoff for the District 3 Commissioner seat. As this map shows, the Black-preferred candidate, Ms. Miller, easily won every county in

District 3 and lost the election only because of voters outside District 3. Had the election been decided by District 3 voters only, rather than all Georgia voters statewide, the Black-preferred candidate would have prevailed.

Map 2: 2018 District 3 Runoff Results¹⁹



¹⁹ <https://results.enr.clarityelections.com/GA/93711/Web02-state.222648/#/cid/28100>.

B. Illustrative Plan 1

I performed a similar analysis on Illustrative Plan 1, which is attached to the plaintiffs' complaint as Exhibit 3. According to the population summary attached to that Exhibit, Black residents make up a majority of the voting-age population and voter registration of District 1 in that plan. District 1 includes the whole counties of Fayette, Clayton, Dekalb, Henry and Newton, and it contains some of the precincts in Fulton County. The plaintiffs' attorneys identified which Fulton precincts are within District 1 and, using precinct-level election results provided by the Secretary of State, I reconstituted each of the 11 elections for Public Service Commissioner to determine whether District 1 would give Black voters the ability to elect a candidate of choice.

Table 5: Summary of Election Results in Complaint's Illustrative District 1 (Black-Preferred Candidate)

Election	Black-Preferred Candidate	Share of Votes Cast
2021 - District 4 Runoff	Blackman	79.82%
2020 - District 4	Blackman	73.86%
2020 - District 1	Bryant	74.78%
2018 - District 5	Randolph	75.71%
2018 - District 3 Runoff	Miller	79.86%
2018 - District 3	Miller	76.06%
2016 - District 2	Hoskins	56.53%
2014 - District 4	Blackman	54.89%
2014 - District 1	Monds	68.94%
2012 - District 5	Staples	55.74%
2012 - District 3	Oppenheimer	68.44%

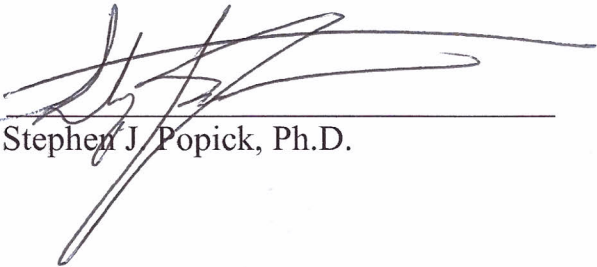
As with the current residency districts, I find that the Black-preferred candidate would have won every election in the majority-Black district but would have lost every election in the other districts. Based on the results in Table 5, I conclude that District 1 in Illustrative Plan 1 would give Black voters the ability to elect candidates of their choice.

V. CONCLUSIONS

My analysis shows that all three *Gingles* preconditions are satisfied in elections for the Georgia Public Service Commission. The current residency districts and Illustrative Plan 1 show that it is possible to create a majority-Black, single-member commissioner district in a five-district plan that would give Black voters the ability to elect candidates of their choice. And voting in elections for Public Service Commissioner have been highly polarized along racial lines, with Black voters voting cohesively in support of their preferred candidates and white voters voting as a bloc to defeat the Black-preferred candidates. Indeed, this pattern of racial polarization is among the clearest I have seen in my professional career. In *100 percent* of the elections for Public Service Commissioner held in the last ten years, Black and non-Hispanic white voters strongly supported different candidates, and the Black-preferred candidate lost in each election.

Pursuant to 28 U.S.C. 1746, I declare under penalty of perjury that the foregoing is true and correct.

Executed on April 21, 2021



Stephen J. Popick, Ph.D.

Appendix A

2021 - District 4 Runoff										
			HPA		ER		Iterative EI		EI RxC	
Model	# Precincts	BPC	Black	White	Black	White	Black	White	Black	White
Main	2536	Blackman	95.5%	15.1%	94.6%	7.0%	100.0%	15.4%	96.1%	17.6%
Alternate	2652	Blackman	96.9%	15.0%	95.0%	7.1%	100.0%	15.4%	95.7%	17.4%

2020 - District 1										
			HPA		ER		Iterative EI		EI RxC	
Model	# Precincts	BPC	Black	White	Black	White	Black	White	Black	White
Main	2588	Bryant	95.9%	13.9%	90.4%	6.5%	99.3%	12.8%	94.5%	14.5%
Alternate	2652	Bryant	96.0%	13.9%	90.7%	6.9%	99.4%	12.7%	93.7%	15.1%

2020 - District 4										
			HPA		ER		Iterative EI		EI RxC	
Model	# Precincts	BPC	Black	White	Black	White	Black	White	Black	White
Main	2588	Blackman	96.3%	14.3%	90.4%	6.6%	99.3%	13.1%	94.3%	14.8%
Alternate	2652	Blackman	96.3%	14.2%	90.8%	7.0%	99.3%	13.1%	94.2%	15.0%

2018 - District 3 Runoff										
			HPA		ER		Iterative EI		EI RxC	
Model	# Precincts	BPC	Black	White	Black	White	Black	White	Black	White
Main	2371	Miller	97.4%	17.8%	91.3%	7.8%	99.7%	20.1%	97.8%	20.1%
Alternate	2619	Miller	97.4%	17.6%	91.2%	8.2%	Not Run	Not Run	97.9%	20.0%

2018 - District 3										
			HPA		ER		Iterative EI		EI RxC	
Model	# Precincts	BPC	Black	White	Black	White	Black	White	Black	White
Main	2578	Miller	97.3%	15.0%	91.6%	6.2%	100.0%	14.4%	96.6%	14.8%
Alternate	2625	Miller	97.3%	15.0%	91.7%	6.5%	100.0%	14.4%	96.7%	15.0%

2018 - District 5										
			HPA		ER		Iterative EI		EI RxC	
Model	# Precincts	BPC	Black	White	Black	White	Black	White	Black	White
Main	2578	Randolph	96.9%	14.6%	91.6%	5.7%	99.0%	13.8%	96.0%	14.4%
Alternate	2625	Randolph	97.0%	14.6%	91.8%	6.0%	98.9%	13.7%	96.0%	14.6%

2016 - District 2										
			HPA		ER		Iterative EI		EI RxC	
Model	# Precincts	BPC	Black	White	Black	White	Black	White	Black	White
Main	2649	Hoskins	77.1%	13.3%	76.8%	4.7%	86.7%	8.5%	79.2%	14.6%
Alternate	2665	Hoskins	77.1%	13.3%	76.7%	4.7%	86.8%	8.5%	78.6%	15.6%

2014 - District 1										
			HPA		ER		Iterative EI		EI RxC	
Model	# Precincts	BPC	Black	White	Black	White	Black	White	Black	White
Main	2662	Monds	77.4%	13.9%	77.7%	6.9%	87.3%	9.5%	82.4%	12.5%
Alternate	2727	Monds	77.4%	13.9%	77.7%	6.9%	87.3%	9.4%	82.5%	12.6%

2014 - District 1										
			HPA		ER		Iterative EI		EI RxC	
Model	# Precincts	BPC	Black	White	Black	White	Black	White	Black	White
Main	2662	Monds	77.4%	13.9%	77.7%	6.9%	87.3%	9.5%	82.4%	12.5%
Alternate	2727	Monds	77.4%	13.9%	77.7%	6.9%	87.3%	9.4%	82.5%	12.6%

2014 - District 4										
			HPA		ER		Iterative EI		EI RxC	
Model	# Precincts	BPC	Black	White	Black	White	Black	White	Black	White
Main	2662	Blackman	95.9%	17.2%	95.7%	9.4%	99.1%	10.8%	81.3%	24.3%
Alternate	2727	Blackman	95.9%	17.2%	95.7%	9.6%	100.0%	11.0%	82.2%	24.5%

2012 - District 3										
			HPA		ER		Iterative EI		EI RxC	
Model	# Precincts	BPC	Black	White	Black	White	Black	White	Black	White
Main	2720	Oppenheimer	94.5%	18.3%	96.8%	11.1%	98.9%	11.8%	89.4%	21.5%
Alternate	2810	Oppenheimer	93.6%	18.7%	96.3%	12.3%	97.4%	12.2%	89.4%	21.4%

2012 - District 5										
			HPA		ER		Iterative EI		EI RxC	
Model	# Precincts	BPC	Black	White	Black	White	Black	White	Black	White
Main	2720	Staples	75.0%	17.2%	76.9%	10.0%	85.3%	13.4%	80.6%	15.4%
Alternate	2810	Staples	74.0%	17.4%	77.2%	11.3%	85.6%	13.3%	75.8%	18.2%

Appendix B

Stephen Joseph Popick, PhD
FDIC Senior Financial Economist and
2018 Congressional Fellow for Senator Jack Reed
505A East Windsor Ave Alexandria, VA 22301 US
stephenpopick@gmail.com
571-224-5114

Expertise:

PhD in Economics in fields of econometrics and urban/regional economics. Banking fellow, U.S. Senator Jack Reed. Nine months management experience as Acting Chief / Section Coordinator in Research branch of Division of Consumer Protection (DCP) managing nine staff members. Fifteen years of experience in performing economic analysis on subjects including banking, housing, local labor markets, anti-trust, and voting. Six years of experience in designing and implementing fair lending related statistical software tools to improve accuracy of statistical estimates, increase efficient use of personnel resources, and streamline communication of statistical results. Over a year of management experience with a team of 10 economists. Invited Speaker at 2016 Tableau conference as an expert on the visual presentation of statistical information.

Education:

George Washington University	Doctorate, Economics	Washington, DC	Aug 2016
George Mason University	Master's, Economics	Fairfax, VA	May 2006
Georgia Institute of Technology	Bachelor's, Economics	Atlanta, GA	May 2003

Northwestern Causal Inference Workshop and Advanced Workshop Aug 2012 & Aug 2013

Course Description: "Research design for causal inference is at the heart of a 'credibility revolution' in empirical research. We will cover the design of true randomized experiments and contrast them to natural or quasi experiments and to pure observational studies."

Publications:

"Climate Preferences, Obesity, and Unobserved Heterogeneity in Cities" with Anthony Yezer, Review of Regional Studies, November 2017

"A Comparative Analysis of Small Area Population Estimation Methods" with Sarah Brinegar, Cartographic and Geographic Information Sciences, November 2010

Working Papers:

"Spatial Sorting of High Skill Workers: Do Housing Costs Matter?" Available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2514847 (Currently under author revision)

White Papers:

"Analyzing Performance of the BISG Proxy using Synthetic Data" with Gregory Lyons. Presented internally within FDIC DCP to inform senior management decisions regarding the use of this new proxy methodology in identifying members of protected classes.

Presentations:

2016 Tableau Conference	2016 Federal Financials Workshop
2016 AREUEA National Conference	2015 AREUEA International Conference
2015 AREUEA National Conference	2014 American Economic Association
2014 North American Regional Science Conference	

Conferences Attended:

Regular attendee of the American Economic Associations Annual Meetings, the conferences of the American Real Estate and Urban Economic Association, Stata, Tableau, the FDIC Consumer Research Symposium, the CFPB Research Conference, and Brookings Institution seminars.

Experience:

Federal Deposit Insurance Corporation (2012 - present)

FDIC Capitol Hill Fellow – Georgetown Government Affairs Institute
Office of U.S. Senator Jack Reed (Dec 2017 - Nov 2018)

- Prior to January start, attended Georgetown Government Affairs Institute training on Congressional legislation, appropriations, functions, bill writing, and other matters to be able to on board effectively.
- Drafted 3 bills relating to emerging issues in the areas of mortgage servicing, new financial assets, and consumer financial stability and financial inclusion.
- Subject matter expert for staff on matters concerning banking regulation, including Community Reinvestment Act, HMDA, SIFI threshold, and impact of major banking legislation such as S.2155, the Economic Growth and Regulatory Relief Act of 2018.
- Served as a specialist for issues relating to depositor and consumer, including fair lending, unfair and deceptive acts and practices (UDAP), community development, and financial inclusion topics.
- Completed policy analysis on various subject matters under exceptionally time-limited circumstances to inform staff and assist with vote recommendations.
- Prepared Senate Banking Committee briefing materials, recommended questions and follow-up questions for the record.
- Prepared speeches and statements for the record for the Senator working with colleagues on a variety of banking related topics.

Acting Chief / Section Coordinator (Dec 2016 - Aug 2017)
(Aug 2019 – Nov 2019)

- Led team of 9 economists, statisticians, and analysts. Worked with colleagues in DCP Exams, DCP Policy, and Legal as appropriate to progress projects and / or casework forward.
- Developed on-the-fly exhibits distilling complex calculations related to compliance risk to assist Division Director in making final determinations of case outcomes.
- Identified role for section staff to assist and improve existing analytic capabilities both within DCP (Community Affairs reporting project, Fair Lending Scoping and Conclusions Tableau tool) and outside DCP (DRR Tableau Reporting Tool). Led efforts to modernize and updates these systems.
- Acted as subject matter expert for FDIC during interagency (Federal Reserve, OCC, CFPB, FDIC) effort to develop shared implementation, guidance, and standards related to the 2015 Home Mortgage Disclosure Act Final Rule. Directly responsible for driving compromise and agreement between agency economists on 'key fields'.
- Initiated review of existing bank branch research tools, resulting in completion of a major improvement in analytic capability on an ESRI mapping platform to inform staff on bank branching patterns and consequences of bank branch closure.
- Led development of numerous tools for FDIC bank examiners, leading to substantial time-savings and improved internal and external communication.
- Read, reviewed, and provided feedback and guidance to staff on over 15 consultations related to fair lending analysis and UDAP examination consultation work, which includes data and model guidance and reviewing staff memorandums of research findings.
- Managed Expression of Interest and job postings and hiring interviews for various positions.

Senior Financial Economist

Develops and estimates models to assess compliance with fair lending laws and regulations using state of the art analytic and econometric techniques.

- Providing econometric subject matter expertise regarding fair lending regression modeling decisions and computer code to research staff members.
- Developing DCP Research statistical modeling framework for fair lending casework where gender is the protected class, presenting the framework internally to DCP management and then implementing the framework in fair lending analysis. Use of this framework has resulted in DOJ referral and restitution paid to harmed consumers.
- Serving as lead economist on annual HMDA analysis assessing compliance risk in pricing and underwriting of mortgage loans to proactively screen regulated banks to

determine banks with highest risk. Duties include developing, maintaining, updating, and estimating models to assess compliance with fair lending laws and regulations.

- Developing and estimating models to assess compliance with fair lending using state of the art analytic and econometric techniques, including linear regression, logit regression, and alternatives to standard models of the error term using multiple software platforms including SAS, Stata, and R. Further, I report these estimates in clear, concise memorandums to economists and non-economists to fully explain the results of the analysis, and meet with DCP Exam, Research, Policy, and Legal staff to review and succinctly answer questions regarding work performed.
- Demonstrating good judgement in fair lending casework during a fair lending case involving underwriting, by noting potential risk to the FDIC when one of the bank's loan programs may qualify as a special purpose credit program. I briefed the Senior Deputy Director on the matter with DCP Exam staff present, creating consensus and mutual agreement on next steps.
- Appropriately elevated a fair lending consult matter to management and senior management of DCP Research when DCP Exams was proposing to close the consultation based on a misunderstanding of DCP Research's results. This led directly to a change in the consultation procedures where DCP Exams prior to closing a consult must notify the appropriate DCP Research Chief for either their concurrence or non-concurrence, and in the case of non-concurrence DCP Exams would organize a meeting to discuss the case with DCP Research and Legal.

Develops data collection procedures, including sampling where appropriate, for the purpose of assessing fair lending or UDAP compliance and calculating potential consumer harm.

- Developed DCP Research's sampling methodology for fair lending casework by writing an internal paper on the proposed methodology and then implemented the sampling methodology with Associate Director and Chief approval in multiple FDIC fair lending consultations. For such cases, wrote data collection procedures for examiners to follow to ensure procedures would produce statistically valid estimates of consumer harm. To date, this is the only sampling methodology used by DCP Research. Use of the sampling methodology has resulted in a DOJ referral and restitution settlement.

Develops and estimates models to assess compliance with UDAP laws and regulations using state of the art analytic and econometric techniques.

- Responsible for developing sound estimates of consumer harm for a UDAP case that resulted in the largest UDAP settlement in history (at the time) on an interagency basis (with CFPB) on identifying consumer harm and restitution which ultimately resulted in over 200 million dollars in restitution to approximately 4 million individuals.

- Produced on the fly restitution estimates through a UDAP case concerning the improper sale of add-on products, improperly charging interest to consumers, and failing to provide to consumer contractually mandated payment options, resulting in over 3 million dollars in restitution to affected consumers.
- On a UDAP case involving a 3rd party product offered by a FDIC-regulated bank, developed innovative visualizations using Tableau to demonstrate consumer harm with respect to the line of credit / savings product. Further, the team involved in this case was awarded the 2012 Champion of Corporate culture by then Chairman Marty Gruenberg.

Conducts research, analyses, and evaluation of various Federal Deposit Insurance Corporation internal operations, to solve urgent, long-range, practical problems of the Corporation and to provide economic advice and counsel used in planning and changing internal programs.

- Currently responsible for responding to GAO Audit requests pertaining to Economic Growth and Recovery Act of 2018.
- Primary Economist responsible for analyzing and presenting internal studies and external research related to Covid-19 and Banking.
- Primary economist responsible for annual HMDA research presentations, identifying trends and findings important to policy and examination responsibilities.
- Led research project on DCP internal operations regarding examination frequency to resolve an urgent problem where the amount of expected examiner hours needed to complete the scheduled examinations was far greater than the actual examiner hours available. The research project simulated examination schedules and tested policy changes to determine if the examination cycle could be smoothed to a more manageable level. Based on this project's research, Chairman Gruenberg's approved new examination frequency guidelines which smoothed the scheduled examination cycle allowing DCP to more effectively manage bank examinations without overburdening bank examiners.

Supported implementation of new Fair Lending tools for DCP Examiners by quickly developing, under significant time pressure, software tools to facilitate importing of data into Fair Lending Wiz. Developed such tools to assist DCP Examiners with data collection, greatly enhancing examiner efficiency through automating to the greatest extent possible the process of preparing data for analysis.

- Responsible for updating the Pricing and Denials Analysis tool to accept and use the new format of HMDA data per the 2015 HMDA Final Rule.
- Represented DCP Research in the 2016 Benchmark Hours Project, which updated examination staffing models by assigning hours based on more granular details of the

bank and exam type, such as whether the bank has a credit card line of business, has major minority population tracts near its branches, etc. Provided subject matter expertise on factors that impact expectations of how many hours a bank examination may take.

Conduct continuous critical reviews of research literature, banking and financial developments, and related matters to keep abreast of current development in those areas as they relate to depositor and consumer protection, including fair lending and UDAP.

- Regularly attend the Joint Fair Lending Task Force meetings to continuously review banking and financial developments as they relate to depositor and consumer protection, including fair lending and UDAP.
- Regularly attend CFPB, FDIC, and academic conferences concerning research in consumer finance, housing finance, lending, financial stability, and other topics.
- Provide critical reviews of consumer finance, financial stability, and related subject matter papers submitted to the FDIC's Consumer Research Symposium annually.
- Leader in effort within agency to integrate data visualization into standard analytic practices. Invited speaker at 2016 Tableau Conference, 2016 Fed Financials Conference

Other Duties

- Provided subject matter expertise and analysis on casework regarding Community Reinvestment Act, and Servicemembers Civil Relief Act consultations.
- Lead on impact study on interchange fees from Debit Card Interchange Rule.

**United States Department of Justice
Senior Statistician - Civil Rights Division**

(2006-2012)

- Subject matter expert on impact of Voter ID laws, redistricting proposals, estimation of voter behavior, polling location change.
- Modernized statistical analysis procedures in use by DOJ
- Work with trial team assessing external expert reports, including identifying relevant questions, weaknesses of analysis by opposing counsel.
- Provide technical expertise and advice to Housing and Civil Enforcement economists regarding improvements to econometric models

Awards

FDIC

Chairman's Innovation and Creativity Award – nominee (2016)

Champion of Corporate Culture (2012)

Mission Achievement Award (2013, 2016, 2017)

Star Award (2012, 2015(x2))

Civil Rights Division, United States Department of Justice

Special Commendation – Nov. 2011

Meritorious Service Award - October 2007, 2008, 2009, 2010

Special Skills

Web-data scraping, statistical programming in multiple languages and platforms (R, SQL, Tableau, SAS, Stata, VBA).

References

Name	Employer	Phone	Email
Anthony Yezer	George Washington University	202 994-6755	yezer@gwu.edu
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